

USSR

UDC 669.141.241.2:621.746.5

BURDONOV, B. A., ANOKHINA, A. I., RYZHKOV, V. P., VAL'TER, V. A., and
BRONFENMAKHER, A. M., Kazakh Metallurgical Plant

"The Quality of Small Ingots of Killed Steel"

Moscow, Metallurg, No 12, Dec 70, pp 17-19

Abstract: The optimum consumption of aluminum (300-400 g/ton) for the deoxidation of St.3 and St.6 steels poured to small ingots was determined. With an aluminum consumption of 300-400 g/ton and a pouring rate of 0.4 m/min or less, cracks do not generate and hairline cracks are not observed on the final rolled metal. An increase in the number of deoxidizers in the foundry ladle results in a greater concentration of oxide impurities. A linear dependence was established between the depth of the shrink hole and the bailing period. The possibility of using calcium carbide for desulfurization of steel in the ladle is demonstrated.

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UDC: 681.327

~~BURDONSKIY~~ I. N., GRISHIN, M. P., KURBANOV, Sh. M., MARKELOV, V. P., SER-
GEEV, V. V., SIDORENKO, V. R., TSEREVITINOV, S. S., SHABUROVA, L. M.,
Moscow

"Computer Processing of Optical Interference Patterns"

Novosibirsk, Avtometriya, No 4, Jul/Aug 71, pp 21-26

Abstract: The paper is a report of initial experiments in using a photo-metric scanning system in conjunction with a general-purpose computer for analyzing halftone images (optical interference patterns). Line-scanning of the pattern was used for computer input through an analog-digital converter with 64 levels of quantization. A flowchart of the processing program is given. The results of computer processing on the Minsk-22 computer are compared with manual analysis for plasma interference patterns. Excellent agreement is observed with a time reduction of more than two orders of magnitude for machine processing. The authors thank V. S. Vaynshteyn and M. I. Pergament for taking part in the initial phase of the work. Three figures, bibliography of five titles.

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Acc. Nr: AP0044664

Ref. Code:

UR 0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48,
Nr 2, pp 42-48

RHEOENCEPHALOGRAPHIC AND CLINICO-NEUROLOGICAL
INVESTIGATIONS IN PATIENTS SUFFERING
FROM HYPERTENSIVE VASCULAR DISEASE

A. A. Burdov

Summary

Rheoencephalographic investigations in patients suffering from hypertensive vascular disease demonstrated deterioration of the state of cerebral circulation manifested by diminution of cerebral blood filling and increased rigidity of vascular walls with an augmented severity of the affection. In late stages of the affection there prevailed a deterioration of the cerebral circulation in the system of vertebral vessels. According to rheoencephalographic data such changes were also noted in other vascular diseases however they were less marked. Confrontation of the results of clinico-neurological and rheoencephalographic data in patients with hypertensive vascular disease demonstrated their greatest alteration in patients with a predominance of cerebral angiodystonic disorders.

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REEL/FRAME
19771395

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UDC 532.593:532.529

KUTATELADZE, S. S., Associate Member of the Academy of Sciences of the USSR,
BURDUKOV, A. P., KUZNETSOV, V. V., NAKORYAKOV, V. Ye., POKUSAYEV, B. G.,
SHREYBER, I. R., Institute of Thermal Physics, Siberian Department of the
Academy of Sciences of the USSR, Novosibirsk

"Concerning the Structure of a Weak Shock Wave in a Gas-Liquid Medium"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 2, 1972, pp 313-315

Abstract: Experiments were done as a qualitative check on theoretical concepts of a shock wave propagating in a liquid containing gas bubbles. The piezoelectric method of measurement was used to investigate the structure of the shock wave front. The LKh609 pressure gauge was used with frequency independence from 20 to 50 kHz and sensitivity of 6.3 V/bar. Nitrogen was blown into the liquid through a porous plate at the lower end of a transparent plastic tube 6 cm in diameter and 100 cm long. Signals from pressure gauges on the inner walls of the tube were sent to a cathode-ray oscilloscope. It was found that increasing the intensity of the shock wave increases the frequency and relative amplitude of oscillations in the shock wave front. Reducing the bubble diameter increases the frequency and reduces the ampli-

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KUTATELADZE, S. S. et al., Doklady Akademii Nauk SSSR, Vol 207, No 2, 1972, pp 313-315

tude of oscillations in the shock wave front. Pressure oscillograms of the shock wave front in a gas-liquid mixture with artificially increased viscosity show a monotonic pressure profile, which confirms the theoretical conclusion of a nonoscillating process in this case.

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Acc. Nr.

AP0048448

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code

UR0444

B

[105592] Optical and luminescent properties of single crystals of $\text{In}_x\text{Ga}_{1-x}\text{As}$ solid solutions. Burdakov, Yu. M.; Zotova, N. V.; Khalilov, Kh. A. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). *Fiz. Tekh. Poluprov.* 1970, 4(1), 174-8 (Russ). The electrophys., optical, and luminescent properties of good-quality single crystals of the solid solns. $\text{In}_x\text{Ga}_{1-x}\text{As}$, contg. small addns. of the 2nd component and grown by the Czochralski method, were investigated. The width of the energy gaps was detd. from the optical-absorption curves. The intensity of the luminescence of the solid solns., which is as strong as that of the starting InAs and GaAs, reveals the possibility of using the crystals in the prepn. of effective light sources.

Alexandre Fucs

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REEL/FRAME

19800156

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UDC 389.0:621.37/.39

VALITOV, R. A., ~~BURDIN, G. D.~~, FRUMKIN, V. D.

"Metrological Work in the Field of Radio Electronics in the Soviet Union"

Moscow, Izmeritel'naya Tekhnika, No 5, May 70, pp 5-13

Abstract: The article is a survey of important methods and facilities for precision measurement worked out by metrological institutes for use as standards in the field of radio measurements. Measurements of frequency, voltage, power, current strength, attenuation, noise and so forth are considered.

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Navigation Aids

USSR

UDC 621.396.967-505.5

SHAKHGIL'DYAN, V. V., BURDZEYKO, B. P.

"Synthesis of Control Circuits for a Radiotachymeter With Variable Repetition Frequency"

Moscow, Radiotekhnika i Elektronika, vol 16, No 11, Nov 71, pp 2091-2097

Abstract: The authors consider the problem of synthesizing the frequency control circuit and smoothing circuits in a radiotachymeter with variable repetition frequency. The parameter to be measured -- delay time -- is assumed to be a random diffusion process. The quasistationary state is considered when the structure of the tachymeter is partially given. The structure of the control network is found in the Gaussian approximation. Three figures, bibliography of five titles.

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USSR

UDC 51:621.391

BURDZHANADZE, D. A. and KAMKAMIDZE, K. N.

"A New Class of Matrices in Coding Theory"

Tr. Gruz. politekhn. in-t (Transactions, Georgian Polytechnical Institute) No 2(150), 1972, pp 101-105 (from RZh--Matematika, No 10, 1972, Abstract No 10V458)

Translation: Let X be a binary matrix. Twelve symmetrical, non-negative, whole-numbered matrices are introduced: 8 matrices of the $Z \cdot Y$ type, where $Z, Y \in (X, X', \bar{X}, \bar{X}')$ (here, X' is transposed to X while \bar{X} supplements X); and 4 matrices which are the sums of the 8 preceding matrices. Several elementary characteristics of these matrices are given. V. Zinov'yev

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USSR

UDC 51:621.391

BURDZHANADZE, D. A. and KAMKAMIDZE, K. N.

"Square Representations of a Rectangular Matrix"

Tr. Gruz. politekhn. in-t (Transactions, Georgian Polytechnical Institute) No 2(150), 1972, pp 106-111 (from RZh--Matematika, No 10, 1972, Abstract No 10V459)

Translation: In the preceding work of these authors, they introduced (Abstract No 10V458) the so-called metric matrices. Clearly, the original X matrix produces only definite metric matrices. This work considers the problem of the inverse of this statement: i.e., the problem of the one-to-one transition from X to the metric matrices. Such a transition is possible if the equation of the form $EX - XN = T = BI_1 - I_2R$ (here $B = \bar{X} \cdot \bar{X}'$, $R = \bar{X}' \cdot \bar{X}$, $E = X \cdot X' + B$, $N = X'XX + R$ are the metric matrices; I_1 and I_2 are the matrices of the corresponding order from 1) has a unique solution (i.e., if matrices E and N have no general characteristic numbers). A method is proposed for the one-to-one transformation of X to the metrical matrices (one or two of the proper lines is added to X). V. Zinov'yev

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USSR

UDC: 51:621.391

BURDZHANADZE, D. A., KAMKAMIDZE, K. N.

"On a New Class of Matrices in Coding Theory"

Tr. Gruz. politekhn. in-ta (Works of Georgian Polytechnical Institute), 1972, No 2(150), pp 101-105 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V458 by V. Zinov'yev)

Translation: Let X be a binary matrix. Twelve symmetric non-negative whole-number matrices are introduced: eight matrices of type $Z \cdot Y$, where $Z, Y \in (X, X', \bar{X}, \bar{X}')$ (here X' is the transpose to X , and \bar{X} is the complement to X), and four matrices which are sums of the eight preceding. Several elementary properties of these matrices are given.

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USSR

UDC: 51:621.391

BURDZHANADZE, D. A., KAMKAMIDZE, K. N.

"Square Mappings of a Rectangular Code Matrix"

Tr. Gruz. politekhn. in-t (Works of Georgian Polytechnical Institute), 1972, No 2(150), pp 106-111 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V459 by V. Zinov'yev)

Translation: In their preceding paper (abst 10V458) the authors introduced so-called metric matrices. Clearly the initial matrix X generates only certain metric matrices. In this paper the question of reversibility of this statement is treated, i. e. the question of a mutually unique transition from X to metric matrices. Such a transition is possible if the equation

$$EX - XN = T = BI_1 - I_2R$$

(here: $B = \bar{X} \cdot \bar{X}'$, $R = \bar{X}' \cdot \bar{X}$, $E = X \cdot X' + B$, $N = X' \cdot X + R$ are metric matrices, I_1 , I_2 are matrices of corresponding orders) has a unique solution (i. e. the matrices E and N do not have common eigenvalues). A method is proposed for mutual single-valued

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BURDZHANADZE, D. A., KAMKAMIDZE, K. N., Tr. Gruz. politekhn.
in-t, 1972, No 2(15), pp 106-111

transformation of X to metric matrices (one or two corresponding lines are added to X).

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БУРЕНОВ, Н. И.

RADARS WITH SYNTHESIZED ANTENNA

JPRS 59391
29 June 1973

Translation of Russian-language book by N. I. Burenov, Radio-
lokalizatsionnye Stantsii s Sintezirovannoy Antennoy, 1972,
Izdatel'stvo Sovetskoye Radio, Moscow, 160 pages.

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[I - USSR - F]

BURENKOV, S. P.

THE UNIVERSITY OF CHICAGO

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[illegible]

~~On behalf of the~~ First Deputy Minister
of Internal Affairs of the USSR

The success of the expansion of the Soviet health service must primarily be based on a completely new approach to management. The first thing the state must understand is that to look after the health of its population, it has a duty to guarantee the health of the people in its main social sectors. It must attach importance in the entire activity of the Soviet health service.

[illegible]

It is generally known that it is easier to prevent a disease than to remedy it. We give a lot to be done on a state-wide scale for the treatment of the relatively simple diseases, but, unfortunately, there is the question of the personnel. At the present time, there are about 750,000 medical doctors per 1,000 of the population. There are about 750,000 medical doctors employed at public health establishments, and all of it is all the country's health service is charged with more than five million people. So far, it is not a very good situation, and all of this means very little to the population. And all this means very little for the solution of the important problem of protection to all-round medical supervision over the population which is one of the basic functions of our public health service.

Just think of it—111,000 medical supervision! And only half a century ago this seemed like something unthinkable and incredible. Really, how could one organize such a thing? In 1860, the only representative of the medical profession was a half-illiterate doctor's assistant, and medical quick doctors practiced in the countryside. There could be no

Salisbury, 20th of Aug.

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bank of disease prevention and effective medical treatment. No wonder there was a high child mortality and sick rate in the countryside.

[illegible][illegible]

Incidentally, no room price in the service of public health is allotted to the medical service at enterprises. It is left to the administration and the trade union organizations to take care of the lot for making working conditions healthier, for taking preventive precautions, and for reducing transmission and propagation of disease.

[illegible]

So far I have dealt basically with the practical work of the Soviet health service. Yet it is also important to see the successes scored in this area during the past few years. From the emergence of our medical science, beginning in 1889 medical and research institutions grew in number and personnel. The country has developed a large medical school and school of research, which have earned a high international reputation. Academic and medical science goes ahead in the most rapid, thorough, and clinical manner there is in an extensive implementation of the principles of treatment and curing of infectious diseases, and this has helped to return to social work our

USSR

UDC: 517.514

BURENKOV, V. I.

"The Property of Additiveness of Spaces $W_p^{(r)}(\Omega)$ "

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications -- Collection of Works], Moscow, Nauka Press, 1970, pp 47-52, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B73, unsigned).

Translation: Results are presented (without proof) relating to the problem of when the inclusion $Z(\Omega_1)Z(\Omega_2) \subset Z(\Omega_1 + \Omega_2)$ is correct for certain classes of differentiable functions $Z(\Omega)$. Necessary and sufficient conditions for "attachment" of the functions of class $W_p^{(r)}$ are presented. Some of the results are formulated for the first time.

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USSR

UDC 547.26'118

YELISEYENKOV, V. N., PUDOVIK, A. N., and BUREVA, N. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"Reaction of Mixed Phosphoric Acid Anhydrides With Chloral"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2150-2153

Abstract: The reaction of chloral with mixed anhydrides of phosphorous, phosphoric, thiophosphoric and thiophosphonic acids has been investigated. It was shown that in case of the reactions with mixed anhydrides of diethylphosphoric, diethylphosphorous, alkyl(diethylamido)phosphorous, diisobutylthiophosphoric, (tetraethyldiamido)-phosphorous and alkyl-methylthiophosphonic and phosphorous acids, in the transitional stage there occurs principally an attack of chloride ion on the tetrahedral phosphorous atom. When chloral is reacted with the anhydrides of dialkyl-thiophosphoric and alkyl(diethylamido)phosphorous acids -- monothiopyrophosphates are formed containing β , β -dichlorovinyl group as one of the radicals.

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USSR

UDC 542.91:661.718.1

YELISEYENKOV, V. N., ~~BUREVA, N. V.~~, and PUDOVNIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Amidophosphites With Dialkylphosphoric and Dialkylthiophosphoric Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya , No 9, Sep 71, pp 2013-2018

Abstract: The authors studied reactions of amidophosphites and phosphorous acid amides with dialkylphosphoric and dialkylthiophosphoric acids. It was found that these reactions result in the elimination of amine and the formation of ester-amides of subphosphoric or subthiophosphoric acid. The reaction is reversible. The resultant anhydrides react with sulfur with evolution of heat to give ester-amides of mono- and dithiopyrophosphoric acid. The authors found a simple and convenient method for the synthesis of these ester-amides in one step without elimination of the intermediate anhydrides.

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1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INFLUENCE OF SAMPLE SIZE ON THE VOLT AMPERE CHARACTERISTIC IN MEDIA
WITH AN AMBIGUOUS DEPENDENCE OF ELECTRON TEMPERATURE ON FIELD STRENGTH
AUTHOR--(03)-BASS, F.G., BOCHKOV, V.S., BUREVICH, YU.G. **B**

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1814-1824
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC ENERGY, ELECTRON TEMPERATURE, PERTURBATION, ELECTRIC
HYSTERESIS, VOLT AMPERE CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/2237

STEP NO--UR/0056/70/058/005/1814/1824

CIRC ACCESSION NO--AP0127599

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127599

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ENERGY BALANCE EQUATION IS SOLVED AND ALL POSSIBLE STATIONARY DISTRIBUTIONS OF ELECTRON TEMPERATURE OVER THE CROSS SECTION OF A FINITE SIZE SAMPLE ARE DETERMINED. A CLASSIFICATION OF THE DISTRIBUTIONS IS PRESENTED. ONLY ONE OF THEM IS STABLE WITH RESPECT TO SMALL PERTURBATIONS; DEPENDING ON SAMPLE SIZE AND ELECTRIC FIELD STRENGTH THIS MAY BE EITHER A HOMOGENEOUS OR MONOTONOUS DISTRIBUTION. FOR SUFFICIENTLY THICK SAMPLES THERE EXIST RANGES OF FIELD STRENGTH VALUES FOR WHICH NOT A SINGLE SOLUTION EXISTS. THIS LEADS TO HYSTERESIS IN THE VOLT AMPERE CHARACTERISTIC. VOLT AMPERE CHARACTERISTICS FOR SAMPLES WITH DIFFERENT TRANSVERSE DIMENSIONS ARE PLOTTED. FACILITY: INSTITUT RADIOFIZIKI I ELEKTRONIKI, AN UKR. SSR FIZIKO-TEKHNICHESKIY INSTITUT NIZKIKH TEMPERATURE, AN UKR. SSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--EXTRACTION OF AROMATIC HYDROCARBONS BY ACETATES OF NITRO ALCOHOLS
-U-
AUTHOR--(U)-DIYAROV, I.N., KOZLOV, L.N., BUKEYEVA, R.R., SHCHEGLOVA, L.V.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3) 12-14
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETATE, ORGANIC NITRO COMPOUND, HYDROCARBON EXTRACTION,
AROMATIC HYDROCARBON, OCTANE, TOLUENE, NONANE, SOLVENT ACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FILE/FRAME--1992/1515 STEP NO--UR/0055/70/015/003/0012/0014

CIRC ACCESSION NO--AP0112509
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACETATES OF NITRO ALCS. HAD A HIGH DISSOLVING CAPACITY AND GOOD SELECTIVITY FOR AROMATIC HYDROCARBONS, BUT THE EXTN. OF THE HYDROCARBONS DECREASED WITH AN INCREASE IN THEIR MOL. WT. THE MOL. WT. OF THE PARAFFINIC HYDROCARBONS IN THE MIXT. HAD THE GREATEST EFFECT ON THE AROMATIC HYDROCARBON CONC. IN THE EXT. THUS, THE EXTN. OF ISOOCTANETOLUENE (I) AND NONANE (II)-I MIXTS. WITH O SUB2 NCH SUB2 CHMEDAC GAVE EXTS. CONTG. 60.2 AND 83.2PERCENT I, THE SEPN. COEFF. BEING 76.5 AND 61.1 VOL. PERCENT, RESP. IN THE CASE OF II-I AND II-O-XYLENE (III) MIXTS., THE EXTS. CONTAINED 83.2PERCENT I AND 82.2PERCENT III, THE SEPN. COEFFS. BEING 61.1 AND 60.4 VOL. PERCENT, RESP. DUE TO THEIR EXCESSIVE DISSOLVING CAPACITY, THE ACETATES WERE RECOMMENDED ONLY AS COMPONENTS OF SELECTIVE SOLVENTS. WATER DECREASED THE STABILITY OF THE ACETATES.

UNCLASSIFIED

Industrial

USSR

UDC 621.43.011:533+621.5:533

SHCHELOKOV, Ya. M., TELEGIN, E. M., BURGANOV, A. A.

"Results of Tests of Industrial Models of Relaxation Vibration Combustion Chambers"

V sb. Vibrats. gorenije v nekot. model'n. ustroystvakh ((Vibration Burning in Some Model Devices--collection of works), Kazan', Kazan' University, 1970, pp 130-141 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B369))

Translation: The paper describes the results of experimental studies of four types of combustion chambers operating in the vibration combustion mode. It is pointed out that the ignition of fuel in this mode permits intensification of the combustion process. A brief survey is presented of works dealing with research on chambers of this type. Two of the chambers had separate supplies for the gas-air mixture, while the other two were equipped with premixing devices. The diameters of the chambers and their lengths were changed in the experiments. The goal of the research was to determine the regions of existence and frequencies of oscillations, and also to compare the results with computed data for the boundaries of the region and frequencies of oscillations. Natural gas was used in the ex-

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SHCHELOKOV, Ya. M. et al., Vibrats. goreniye v nekot. model'n. ustroystvakh, Kazan', Kazan' University, 1970, pp 130-141

periments. The rates of flow of air and gas were measured as well as the frequencies of oscillations. The effect which the length of the flame run has on the dimensions of the region of existence is determined in terms of the volumetric flow rates of air and gas. The frequency of the oscillations is determined as a function of the flow rate of the mixture when tube lengths are varied. Applicability of the formula to the frequency of oscillations in nonresonance vibration combustion systems is demonstrated. Bibliography of 23 titles. Yu. F. Dityakin.

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USSR

UDC: 619.612.128

RIURCANOV, R. K., KADOCHNIKOV, A. P.

"A Method of Determining the Activity of Cholinesterase"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335253, Division C, filed 17 Nov 70, published 11 Apr 72, p 89

Translation: This Author's Certificate introduces a method of determining the activity of cholinesterase by using substrates to determine the increase in luminescence intensity. As a distinguishing feature of the patent, sensitivity. As a distinguishing feature of the patent, sensitivity and accuracy are improved and the determination time is reduced by using a luminescent substrate of β -methyl umbelliferone acetate in a concentration of $3.6 \cdot 10^{-7}$ g/ml in a phosphate buffer with a pH of 7.8-8.

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USSR

UDC 517.934

BURGANSKAYA, L. I., Belorussian Institute of Agricultural Mechanization

"Absolute Stability of Direct Control Systems in Two Critical Cases"

Minsk, Differentsial'nyye Uravneniya, Vol 7, No 9, Sep 71, pp 1568-1574

Abstract: The author shows that the sufficient conditions for absolute stability of a direct control system are contradictory when the matrix of the system of the control object has the pair of conjugate, purely imaginary characteristic numbers formulated in the 1967 monograph of S. Lefshets. She finds several modified sufficient conditions for this case in which the above contradictions have been eliminated. She finds analogous conditions for the case in which the matrix of the system of the control object has a pair of zero characteristic numbers with nonprime elementary dividers. The author presents theorems and gives proof thereto to solve the problem as stated. The article contains 10 bibliographic entries.

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Immunology

USSR

UDC 616.981.51-084.47:615.473.9

BURGASOV, P. N., CHERKASSKIY, B. L., ADILOV, D. A., KNOP, A. G.,
SAVINYKH, A. I., and AGZAMOV, B. M., Central Institute of Epidemiology,
Moscow

"Immunization of Humans Against Anthrax by the Jet-Injection Method"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, Aug 73,
pp 23-26

Abstract: Persons 16-25 yrs old were immunized against anthrax with STI vaccine by the jet-injection method, subcutaneously with a syringe, and by skin scarification. Jet injection was carried out at a pressure of 11 atm by means of a BIP-4 injector. General reactions indicated by fever did not develop on immunization by any of the three methods applied. Local skin reactions were weak; they were exhibited most frequently on immunization by the jet-injection method, less frequently on application of the scarification method, and with the least frequency on immunization by injection with the hypodermic syringe. As indicated by skin allergy tests with anthraxin, the immuno-allergic readjustment of the organism which developed after immunization by the jet-injection method was no less pronounced than that which took place on immunization by the two other methods.

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BURGASOV, Yu. A.

medicine

50:3PR5 55015

25 JAN 92

PREREQUISITES FOR DEVELOPING A RATIONAL SYSTEM OF GATHERING AND PROCESSING
EPIDEMIOLOGICAL INFORMATION

(91 Minutes)

UDC: 610.9-036.2-07:681.3

Article by Professor A.A. Sumarokov, *Academy of Medical Sciences A.V. Pavlov, V.L. Lelkov and B.Ye. Tolstunov, Yu.A. Burgasov, A.A. Dvornikov, Central Institute of Epidemiology, USSR Ministry of Health, Moscow, Sovetskoye Zdravookhraneniye, Russian, No 12, 1971, submitted 14 June 1971, pp 45-50*

As a result of the technological revolution some extremely complex electronic devices have been developed which are in wide use in different industrial processes for the purpose of freeing to a maximum both muscular and analytical activities of man. Obviously, interest is increasing daily with regard to the use of electronic transmitting and computer devices in different areas of industry. The utmost efficiency of computers requires first of all that an orderly logical method be created for gathering, transmitting, and processing the appropriate information which is the basis of rational organization and effective management of production systems in general and of the system of epidemiological service to the people in particular.

The wide adoption of diverse electronic instruments and devices in production processes to optimize the latter has made it necessary to develop automatic control theory, the main concepts of which are, in turn, used to develop problems of management of so-called large systems; the system of epidemiological service may be included in the latter.

One of the chief issues determining development of a system of large system management is its structure. The structure of the sanitary and epidemiological service in our country consists of five elements: rayon, municipal (for cities with division into raions), oblast (krai), republic, and Union. With the exception of the first element (which is managed but does not manage) which provides for the gathering of primary information (detection of cases of infectious diseases and initiation of the appropriate preventive and epidemic control measures), the functions of the other four are similar but on different scales.

They consist of summarizing and analyzing epidemiological information, then transmitting it by the principle of direct communication and feedback, monitoring organization and performance of effective and prompt preventive and epidemic control measures by subordinate structural elements, methodological and

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THE USE OF MATHEMATICAL METHODS IN EPIDEMIOLOGY, REPORT II,
EMPIRICAL AND THEORETICAL DISTRIBUTIONS -U-
AUTHOR-(05)-BEZDENEZHNYKH, I.S., BURGASOV, YU.A., YELKIN, I.I., LEONTYEVA,
L.G., TKACHEVA, M.N.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,
PP 3-9
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EPIDEMIOLOGY, APPLIED MATHEMATICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0723

STEP NO--UR/0016/70/000/006/0003/0009

CIRC ACCESSION NO--AP0126435

UNCLASSIFIED

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008

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126435

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NECESSITY OF USING STATISTICAL METHODS IN THE FIELD OF EPIDEMIOLOGICAL INVESTIGATIONS IS SUBSTANTIATED. A METHOD AND INDICATIONS TO DETERMINATION OF THE MEAN VALUES, OF ASSESSMENT CRITERIA OF THE SIGN VARIABILITY, AND METHODS AN ANALYSIS OF DISTRIBUTION OF THE DATA IN SOLVING DEFINITE EPIDEMIOLOGICAL PROBLEMS ARE EXEMPLIFIED. THE LEADING ROLE PLAYED BY ANALYZING THE MATERIAL NATURE OF THE METHODS INVESTIGATED IN ASSESSING THE RESULTS OF STATISTICAL TREATMENT OF THE MATERIAL IS EMPHASIZED. FACILITY: TSENTRAL'NYY INSTITUT EPIDEMIOLOGII, MOSKVA.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--HALF LIFE OF CALIFORNIUM 252 SPONTANEOUS FISSION -U-

AUTHOR--(05)-ALEKSANDROV, B.M., BAK, M.A., BOGDANOV, V.G., BURGORKOV, S.S.,
SOLOVYEVA, Z.I.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(CT). 361-2

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--HALF LIFE, CALIFORNIUM ISOTOPE, NUCLEAR FISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3008/0563

STEP NO--UR/0089/70/028/000/0361/0362

CIRC ACCESSION NO--AP0137648

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0137648
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATIO OF THE NO. OF ALPHA
DECAYS TO THE NO. OF SPONTANEOUS FISSIONS OF PRIME252 CF IS 31.34 PLUS
OR MINUS 0.08. FROM THIS RATIO A HALF LIFE OF 8.5 PLUS OR MINUS 0.4 YR
WAS FOUND FOR THE SPONTANEOUS FISSION OF PRIME252 CF.

UNCLASSIFIED

Construction

USSR

UDC 624.072.042.7:519.2:681.3:
:534.1

BURGMAN, I. N., Moscow

"Nonlinear Oscillations of Frameworks With Suspended Masses
at Seismic Action"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 1,
1973, pp 58-61

Abstract: The effect of geometrical nonlinearity of frameworks and suspended masses on the seismic reaction of a building is analyzed, examining final dislocations of supporting structures and suspended loads under the assumption that the material of the framework works within the elastic limits. The dissipative forces in the structure and the hinge of the suspension are assumed in accordance with the revised Kelvin-Voigt hypothesis of viscous friction. At 5-1 Hz framework frequencies, the seismic loads can be determined with sufficient exactness as for linear systems; at 0.6-0.3 Hz frequency, the norm value of the
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USSR

BURGMAN, I. K., Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 1, 1973, pp 58-61

seismic force has to be corrected by a factor to be taken from a table of values calculated for different frequency characteristics of the framework, the suspended load, and mass relations. For flexible frameworks, the accounting for the geometrical nonlinearity of "soft" type results in an up to 30 % reduction of seismic loads. Four figures, four formulas, one table, three bibliographic references.

2/2

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1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--GAMMA RAY SPECTRA OF THE CAPTURE OF RESONANCE NEUTRONS BY RHODIUM,
TANTALUM, AND GOLD -U-
AUTHOR-(05)-BURGOV, N.A., DANILYAN, G.V., YEFIMOV, I.A., KAZACHKOVSKIY,
O.D., PAVLOV, V.S. *B*
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 89-96

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAMMA SPECTRUM, RADIATIVE CAPTURE, NEUTRON ABSORPTION,
RESONNANCE ABSORPTION, RHODIUM, TANTALUM, GOLD, GAMMA TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/2003

STEP NO--UR/0048/70/034/001/0089/0096

CIRC ACCESSION NO--AP0105077

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105077

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRA OF GAMMA RAYS FROM THE CAPTURE OF THE RESONANCE NEUTRONS (0.5 IS SMALLER THAN E SUBN IS SMALLER THAN 7.0 MEV) BY RH, TA, AND AU NUCLEI WERE MEASURED BY THE GLOBAL METHOD. ADVANTAGES AND DISADVANTAGES OF THE SUGGESTED METHOD ARE DISCUSSED. THE ENERGIES AND INTENSITIES OF THE GAMMA TRANSITIONS IN PRIME104 RH, PRIME182 TA, AND PRIME198 AU WERE CALCD. FROM THE EXPTL. DATA. THE ENERGIES AND SPINS OF THE LOWER EXCITED STATES OF THESE NUCLEI ARE PRESENTED AND COMPARED WITH THE ANALOGOUS DATA OF OTHER WORKS. THE NEWLY DISCOVERED STATES ARE INDICATED.

UNCLASSIFIED

USSR

UDC 543.544.45.08:662.75:658.382.3

PROTOYEREYSKIY, A. S., BURICHENKO, L. A., CHUMAKOV, Yu. I.

"Miniaturized Gas Chromatograph for Determination of the Content of Aviation Fuels and Toxic Substances in the Air in Production Areas"

Sb. Nauch. tr. Kiev. In-t. Inzh. Grazhd. Aviatsii [Collected Scientific Works of Kiev Civil Aviation Engineering Institute], 1971, No 2, pp 63-67, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.856).

Translation: The design of the units of a small high temperature gas chromatograph for determination of the concentration of toxic substances directly in the air of production areas is described. The device allows rapid, quantitative determination of small concentrations of volatile toxic substances in the air. 4 Figures; 6 Biblio. Refs.

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- 124 -

USSR

UDC 947.943

POROGHIN, K. T. (DECEASED), SADYKOV, YU. D., KHAYDAROV, K. KH., VOYSI-KOL'-
SHNEYN, A. L., DESTYAREV, V. A., and BURICHENKO, V. K., Institute of Chemistry
Academy of Sciences TadzhSSR

"Physiologically Active Papaverine Derivatives"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1972, pp 83-84

Abstract: Papaverine reacted with acyl chlorides of sulfonic acids, carboxylic acids and chloroacetic acid, yielding N-benzenesulfonylpapaverinium chloride, m.p. 200° (dec.); N-benzoylpapaverinium chloride, m.p. 193°; N-acetylpapaverinium chloride, m.p. 217° (dec.); and the chloride of N-papaverineacetic acid, m.p. 210° (dec). The products exhibited hypotensive and spasmolytic properties.

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1/3 049 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ACHIEVEMENTS IN THE PUBLIC HEALTH OF THE WESTERN OBLASTS OF
UKRAINIAN SSR -U-
AUTHOR--BURIKHIN, T.N. *B*
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 6, 1970,
SUBMITTED 21 NOVEMBER 1969, SIGNED TO PRESS 3 MAY 1970, PP 69-72
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PUBLIC HEALTH, MEDICAL TRAINING, ACADEMIC INSTITUTION, MEDICAL
FACILITY, MEDICAL PERSONNEL, PLASTIC SURGERY, CARDIOVASCULAR SYSTEM,
RHEUMATIC DISEASE, BURN, NEUROLOGIC SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0701

STEP NO--UR/0753/70/000/006/0069/0072

CIRC ACCESSION NO--AP0132810

UNCLASSIFIED

2/3 049

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132810

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PUBLIC HEALTH THAT IS TRULY PUBLIC HAS BEEN BUILT UP IN THE WESTERN UKRAINE ON THE BASIS OF SOCIALIST TRANSFORMATIONS. THE TRAINING OF PHYSICIANS AND MIDDLE LEVEL MEDICAL PERSONNEL HAS DEVELOPED EXTENSIVELY. DURING THE YEARS OF SOVIET POWER 14,077 PHYSICIANS, NOT INCLUDING PHARMACISTS, HAVE BEEN TRAINED IN THE FOUR NEW MEDICAL INSTITUTES AND THE MEDICAL FACULTY OF UZHGOROD UNIVERSITY. AT THE SAME TIME, BETWEEN 1919 AND 1939, I.E., IN 20 YEARS, ONLY 2,275 PHYSICIANS GRADUATED FROM THE MEDICAL FACULTY OF L'VOV UNIVERSITY. NOW THERE ARE MORE THAN 20 PHYSICIANS AND 75 MIDDLE LEVEL MEDICAL WORKERS FOR EVERY 10,000 INHABITANTS OF THE WESTERN UKRAINE. THERE HAS BEEN AN INCREASE IN THE NUMBER OF SCIENTISTS HEADING CHAIRS IN MEDICAL INSTITUTES AND DIVISIONS IN SCIENTIFIC RESEARCH INSTITUTES AND WORKING ON THE URGENT PROBLEMS OF MEDICAL SCIENCE AND PUBLIC HEALTH. THE DISPENSARY METHOD FOR THE ACTIVITY OF POLYCLINIC MEDICAL ESTABLISHMENTS IS AN IMPORTANT PREVENTIVE MEASURE; IT PROVIDES INEXHAUSTIBLE OPPORTUNITIES FOR IMPROVING THE HEALTH OF THE POPULATION. THE WORKERS RECEIVE COMPETENT AND SPECIALIZED MEDICAL SERVICE IN THE EXTENSIVE NETWORK OF POLYCLINICS, DISPENSARIES, AND ADVISORY CENTERS, WHOSE NUMBER NOW EXCEEDS 1,070. BY 1967 HOSPITALS HAD MORE THAN 75,000 BEDS. THIS MEANS THAT THERE WERE 92 BEDS PER 10,000 INHABITANTS, AS AGAINST 11 BEDS (INCLUDING PRIVATE HOSPITALS) IN BOURGEOIS POLAND.

UNCLASSIFIED

3/3 049

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132810

ABSTRACT/EXTRACT--THE CONSTRUCTION OF NEW HOSPITALS AND EXPANSION OF EXISTING HOSPITALS HAVE MADE IT POSSIBLE TO SET UP MULTIPURPOSE CITY, CENTRAL RAYON, AND SECTION HOSPITALS, TO ORGANIZE INTEROBLAST CENTERS OF THORACIC AND PLASTIC SURGERY, OBLAST CARDIO-RHEUMATOLOGY CENTERS, BURN CENTERS, AND OTHER CENTERS. EFFECTIVE OPERATIONS FOR VARIOUS AILMENTS ARE BEING PERFORMED NOT ONLY IN THE CITY, BUT ALSO IN THE CENTRAL RURAL HOSPITALS, AND UP TO DATE METHODS OF CONSERVATIVE THERAPY ARE ALSO BEING USED THANKS TO THE CREATION OF SPECIALIZED SERVICES AND THE ENERGETIC TRAINING, SPECIALIZATION, AND ADVANCED TRAINING OF PHYSICIANS. NEUROSURGICAL SERVICE IS ALSO DEVELOPING. FACILITY: L'VOV MEDICAL INSTITUTE.

UNCLASSIFIED

USSR

UDC 51

BURIKOV, A. D., VOSKOV, L. S., and SUSHCHINSKIY, I. M.

"Method of Solving Special-Type Discrete Programming Problem"

Tr. Mosk. in-ta elektron. mashinostr. (Works of Moscow Institute of Electronic Machine-Building), 1971, vyp. 16, Part 2, pp 111-117 (from RZh-Matematika, No 5, May 72, Abstract No 5V422 by YU.FINKEL'SHTEYN)

Translation: The conveyer-line synchronization problem is formulated as a special-type, integral linear-programming problem. To solve it, the authors suggest an approximation directed-sorting algorithm (in the majority of experiments conducted by the authors the algorithm yielded an exact solution).

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USSR

UDC: 51

BURIKOV, A. D., VOSKOV, L. S., SUSHCHINSKIY, I. M.

"A Method of Solving a Discrete Programming Problem of Special Form"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 16, ch. 2, pp 111-117 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V422)

Translation: The problem of synchronizing a conveyer line is formulated as a special kind of integral linear programming problem. An approximate algorithm of directed sorting is proposed for solving it (in most of the experiments done by the authors the algorithm gave an exact solution).
Yu. Finkel'shteyn.

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1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CHEMICAL STABILITY OF ELECTRON EXCHANGE FIBROUS MATERIALS -U-

AUTHOR-(04)-BURINSKIY, S.V., TAMAZINA, V.N., VOLF, L.A., MEOS, A.I.

COUNTRY OF INFO--USSR **B**

SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(4), 851-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, CHEMICAL STABILITY, FORMALDEHYDE,
RESORCINOL, ALCOHOL, POLYMER, THIOUREA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0727

STEP NO--UR/0080/70/043/004/0851/0854

CIRC ACCESSION NO--AP0119634

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--23JCT7C

CIRC ACCESSION NO--AP0119634

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REPRODUCIBILITY OF REDOX CAPACITY OF FIBROUS ELECTRON EXCHANGE POLYMERS CONTG. QUINOID OR SULFHYDRYL GROUPS WAS DETD. BY CYCLIC REDOX TREATMENTS (REDN. BY NA BUS₂ S SUB₂ O SUB₄ AND OXIDN. BY DIL. H SUB₂ SO SUB₄ CONTG. FECL SUB₃), AND THE CHEM. STABILITY OF THOSE CONTG. QUINOID GROUPS WAS IMPROVED BY SUPPLEMENTARY TREATMENT WITH HCHO RESORCINOL MIXTS. (A). THE ELECTRON EXCHANGE CAPACITY (WHICH WAS REDUCED FROM CYCLE TO CYCLE) OF CELLULOSE HYDRATE AND POLY(VINYL ALC.) (I) WAS IMPROVED BY GRAFTING WITH A POLYCONDENSATE OF HCHO, PYROGALLOL, AND RESORCINOL, BUT THE ELECTRONIC EXCHANGE RATE WAS REDUCED BECAUSE OF STERIC OBSTRUCTION TO DIFFUSION BY THE CROSSLINKED STRUCTURE. SUBSEQUENT TREATMENT WITH A GAVE POLYMETHYLENE RESORCINOL CROSSLINKS, WHICH IMPROVED THE KINETIC ELECTRON EXCHANGE AND CHEM. STABILITY OF I-HCHO-PYROCATECHOL AND I-HCHO-PYROGALLOL GRAFT COPOLYMERS. THE REDOX CAPACITY OF SULFHYDRYL-CONTG. POLYMERS BASED ON ET XANTHATE OR THIOUREA WAS DECREASED LITTLY ON CYCLIC REDOX TREATMENT EVEN WITH HEATED OXIDIZING SOLNS. FACILITY: LENINGRAD. INST. TEKST. LEGK. PROM. IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

Stress Analysis and Stability Studies

USSR

UDC 534.9.011

BURIYEV, T., Order of the Red Banner of Labor Institute of Cybernetics With Computer Center, Academy of Sciences UzSSR

"On the Use of an Electronic Computer for the Static Calculation of the Torsion of Rods and of the Bending of Beams at Repeated and Variable Elasto-Plastic Loads"

Tashkent, Izvestiya Akademii Nauk UzSSR, Soriya Tekhnicheskikh Nauk, No 3, 1973, pp 48-51

Abstract: The correlation between the components of stresses and deformations at repeated and variable elasto-plastic loads was established on the basis of the theory of small elasto-plastic deformation. The boundary problems for the static calculation of the torsion of rods of non-circular section with variable characteristics were solved by the Bubnov-Galerkin method. Accordingly was worked out the algorithm of the realization on the M-20 electronic computer for the static calculation of the torsion of rods and of the bending of stretched beams. The program realizing the given problems comes to the program of the static calculation of round plates subjected to axially symmetric loads. Nine formulas, six bibliographic references.

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USSR

UDC: 669.15'782'743'295-196

ZHIRONKIN, A. N., BURKANOV, A. G., RAYNES, L. S., BOROVNIKOV, A. A., SOKOLOV, V. L., PERSIDSKAYA, L. V., GABERTSETTEL', A. I., TOLOCHIN, V. G., TARAPATIN, P. S., Leningrad Kirov Plant

"Graphitized Steel"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334272, Division C, filed 15 Sep 69, published 30 Mar 72, p 104

Translation: This Author's Certificate introduces a graphitized steel which contains carbon, silicon, manganese, titanium and iron. As a distinguishing feature of the patent, friction properties are improved by adding copper and taking the components in the following proportions in percent: carbon--1.3-1.5; silicon--1.3-1.6; manganese--0.3-0.5; copper--1.2-1.6; titanium--0.25-0.4. Impurities are as follows (in percent): sulfur--less than 0.03; phosphorus--less than 0.035; chromium--0.20; nickel--less than 0.20; the remainder iron.

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USSR

UDC: None

NATSIK, V. D. and BURKANOV, A. N.

"Radiation of Rayleigh Waves by Edge Dislocations Salient on Crystal Surfaces"

Leningrad, Fizika Tverdogo Tela, vol 14, No 5, 1972, pp 1289-1296

Abstract: The present paper is the sequel to a letter written by the first of the authors named above to the editor of the Journal of Experimental and Theoretical Physics (Pis'ma ZhETF, 8, 324, 1968) in which he predicted the existence of sonic radiation at the junction of dislocations appearing at a salient in the surface of the crystal emitting the radiation. This radiation also consisted of Rayleigh waves propagated along the crystal surface, and it is these waves with which the present paper is concerned. The authors discuss the Fourier components of the radiation fields, the spectral composition of the Rayleigh radiation, and the space-time form of the radiation. They express their gratitude to V. S. Boyko for his comments and are associated with the Physico-Technical Institute for Low Temperatures, Ukrainian Academy of Sciences, at Kharkov.

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USSR

UDC 669.71.074.2

FIALKOV, YU. G., BURKAT, V. S., LISITSYNA, N. I.

"Absorption of Hydrogen Fluoride from Aluminum Production Gases in a Hollow High-Speed Scrubber"

Tr. Vses. n.-i. i provektn. in-ta alumin., magn. i elektrodn. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 157-167 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G209)

Translation: A study was made of the absorption of HF by a 5% soda solution in a hollow high-speed scrubber at an aluminum plant. The scrubber is a cylindrical unit 1 meter in diameter with evolvent atomizers arranged in three tiers and louvered separators. The basic laws of gas absorption in hollow scrubbers are discussed. The effect of a number of factors on the process is discovered: the arrangement of the atomizers, the gas velocity, and the reflux density. The operation of the scrubbers with reflux of its individual atomizer in different positions is studied. On the basis of this study, the optimal direction of the liquid feed is selected -- upward through the middle and lower atomizers and downward through the upper atomizer. With a reflux density of $L = 20$ m/hour and three atomizers, this made it possible to obtain

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USSR

FIALKOV, YU. G., et al., Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti, 1970, No 71, pp 157-167

absorption indexes analogous to the indexes for 30 m/hour and 6 atomizers directed in both directions. The effect of the flow rate of the absorbent on the cleaning efficiency and the absorption coefficient K_v is studied. The dependence of K_v on L is expressed in the form $K_v = AL^x$ where the experimental value of x is 0.46. The effect of the gas velocity W_g was studied within the limits of 2.8-8.0 m/sec; y is defined as equal to 0.96 in the expression $K_v = BW_g^y$. Thus, with an increase in W_g to 8 m/sec, the purification efficiency is almost not reduced. The resistance of the unit for $W_g = 8$ m/sec and $L = 45$ m/hour was 65 mm H₂O. The results of the research are generalized in the form of the empirical equation $K_v = 267L^{0.46}W_g^{0.96}$ permitting hollow scrubbers to be calculated under conditions close to the tested ones. There are 5 illustrations.

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USSR

UDC 669.71.074.2

MARGOLIN, Ye. V., BURKAT, V. S., KLYUSHKIN, V. P., CHERKASSKIY, M. L.

"Development of a Method for the Determination of Drop Transfer From Wet Gas Purification Apparatus in Aluminum Production"

Tr. Vses. N-i. Projektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 168-176. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G162 by the authors).

Translation: A review is presented of existing methods for determination of drop transfer. A new method is suggested, recommended for use both in testing of industrial wet purification apparatus and for organization of periodic testing of drop transfer. The accuracy of the method is quite high in determining drop transfer of up to 1.2 g/m^3 s. t. p. 3 figs; 2 tables.

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USSR

UDC 577.1:615.7/9

BURKATSKAYA, YE. N., OSTROUKHOVA, V. A., KARPENKO, V. N., ANINA, I. A., OLEFIR, A. I.

"Characteristic Features of the Reactions of the Organism under the Prolonged Effect of Various Classes of Chemicals"

V sb. Nauch. osnovy sovrem. metodov gigiye. normirovaniya khim. veshchestv v okruzhayushchey srede (Scientific Principles of Modern Methods of Hygienic Normalization of Chemicals in the Environment -- collection of works), Moscow, 1971, pp 135-141 (from RZh-Biologicheskaya Khimiya, No 14, Jul 72, Abstract No 14F2050)

Translation: On the basis of a study of the effect of organochlorine and organophosphorus and carbamate pesticides (experiments on rats) on certain biochemical systems of the organisms, the morphological composition of the blood and the immunological reactivity, it is considered that during hygienic normalization of chemicals as integral tests, the biochemical, hematologic and immunologic indexes can be used.

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USSR

UDC 615.777/.779-015:612.014.461

BURKATSKAYA, YE. N., and KARPENKO, V. N., Kiev Scientific Research Institute
of Industrial Hygiene and Occupational Diseases

"Effect of Dinitrophenol Pesticides on Water and Electrolyte Metabolism"

Kiev, Vrachebnoye Delo, No 2, 1971, pp 126-130

Abstract: The effects of five compounds - dinitrophenol (DNP), dinitroortho-cresol (DNOC), dinitro-isopropylphenol (DNPP), dinitrosecondarybutylphenol (DNBP), and dichloronitrophenol (DCNP) - on the concentration of potassium and sodium in plasma, erythrocytes, myocardium, liver, and kidneys were studied in white rats. Despite the differences in chemical structure, all the pesticides increased blood sodium and form of them increased the potassium concentration. DNOC, DNPP, and DNBP substantially increased the sodium content of all the viscera. DCNP had no effect in this respect, while DNP decreased the sodium and potassium concentrations in the myocardium and liver. Total water in the myocardium and liver decreased after administration of the pesticides and in some cases the amount of intracellular water increased proportionately. The above changes in water and electrolyte metabolism account for some of the clinical symptoms associated with poisoning by dinitrophenol derivatives in man - thirst, elevated temperature, sensation of fear, and motor restlessness. 1/1

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1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE EFFECT OF DINITROPHENOL AND CARBAMIC ACID DERIVATIVES ON
OXIDATIVE PHOSPHORYLATION AND SOME ASPECTS OF THE NUCLEINIC -U-
AUTHOR-(02)-BURKATSKAYA, YE.N., ANINA, I.A.
COUNTRY OF INFO--USSR *B*
SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1970, NR 5, PP
39-41
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ORGANIC NITROGEN COMPOUND, BENZENE DERIVATIVE, CARBAMATE,
PHOSPHORYLATION, OXIDATION, NUCLEIC ACID, METABOLISM, RNA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0694 STEP NO--UR/0391/70/000/005/0039/0041
CIRC ACCESSION NO--AP0117919
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117919

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTION OF DINITROPHENOL COMPOUNDS AND CARBAMIC AND THIOCARBAMIC ACIDS DERIVATES ON THE PROCESSES OF OXIDATIVE PHOSPHORYLATION WAS STUDIED. BOTH GROUPS OF SUBSTANCES WERE FOUND TO UPSET THE ENERGY METABOLISM, THE ORIENTATION OF CHANGES, HOWEVER, BEING DISSIMILAR, SINCE DINITROPHENOLS DISSOCIATE OXIDATION AND PHOSPHORYLATION. CARBAMIC COMPOUNDS, ON THE OTHER HAND, ACT SPECIFICALLY ON THE NUCLEINIC AND PROTEIN METABOLISM, THIS MANIFESTING ITSELF BY AN INCREASED ACTIVITY OF ENZYMES STEMMING FROM DISINTEGRATION OF NUCLEINIC ACIDS AND BY A COMPENSATORY INTENSIFICATION OF THE RNA SYNTHESIS (IN ACUTE TESTS). LIABLE TO CHANGE ARE ALL RNA FRACTIONS, INCLUDING LOW HIGH POLYMERIC AND NUCLEAR ONES. UNDER THE EFFECT OF CARBAMATES INCORPORATION OF THE RADIOACTIVE METHIONINE IN THE LIVER PROTEINS BECOMES MORE INTENSIVE. FACILITY: INSTITUT GIGIYENY TRUDA I PROFZABOLEVANIY.

UNCLASSIFIED

Acc. Nr.: **APo 030925**

Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp109-110

SUMMARY

EFFECT OF DINITROPHENOL PESTICIDES ON THE BLOOD SERUM
TRANSAMINASE AND ALDOLASE ACTIVITY

Ye. N. Burkatskaya and I. A. Anina (Kiev)

Results of this study indicate that the activity of blood serum transaminase and aldolase increase in poisoning with dinitrophenol pesticides. There was no distinct dependence between the chemical structure and degree of disorders.

It is suggested that determination of the blood serum transaminase and aldolase activity may be used for the diagnosis of intoxications.

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REEL/FRAME

19690944

USSR

UDC 613.633:622.349.3

BURKHANOV, A. I., Karaganda, Institute of Labor Hygiene and Occupational Diseases

"Investigation of the Action of Mixed Dust on the Organism in the Rare Metal Industry"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 12, 1971, pp 56-58

Abstract: The effect of lead, zinc, arsenic, selenium, silicon oxide, and traces of other elements present in dust of industrial plants producing Se, Te, In, and Cd on the animal organism was studied. Experiments were carried out with white mice, which were subjected to air containing 80 mg of complex dust per m³ air for 12 months (50 mice), and to air containing 2 mg of complex dust per m³ air for 4 months (22 mice). Weight of the mice in the first and second groups increased from 146 ± 3.7 to 324 ± 14.0 , and from 153 ± 4.1 to 160 ± 5.5 g, respectively. Control mice increased their weight from 141 ± 4.2 to 248 ± 9.4 , and from 139 ± 4.5 to 187 ± 6.4 g, respectively. Consumption of oxygen by mice in the first group decreased from 760 ± 17.0 to 550 ± 20.0 ml/kg/hour, and it increased for the control mice from 740 ± 24.0 to 850 ± 40.0 ml/kg/hour. Functions of the central nervous system in both groups of mice were retarded to some extent, and the number of

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UDC: 669.018.45:548.55

SAVITSKIY, Ye. M., BURKHANOV, G. S., SHNYREV, G. D., DORON'KIN, Ye. D.,
SERGEYEV, N. N.

"Use of Plasma Heating for Growth of Single Crystals of Refractory Metals"

Moscow, Tsvetnyye Metally, No 12, Dec 73, pp 40-41.

Abstract: Plasma heating is used to intensify metallurgical processes and create new methods for production and refining of metals. The method of cathode-ray zone melting allows pure, low-defect single crystals of various metals to be produced, but cannot be used for large single crystals, since the diameter is limited by surface tension. This has required the development of another method for production of single crystals of refractory metals, allowing the production of large single crystals and their purification of carbon. This article describes a method for producing large single crystals of tungsten and molybdenum using plasma-arc heating. The productivity of the method is several times higher than that of cathode ray zone melting. It is economically competitive with vacuum-arc melting, but produces higher-quality tungsten crystals. The quality of the tungsten crystals is approximately equal to those produced by cathode ray zone melting.

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USSR

UDC: 669.28·849.620.178.2

SAVITSKIY, Ye. M., MORGUNOVA, N. N., BURKHANOV, G. S., KATAYEV, R. S., Moscow

"Influence of Iron-Group Metals on the Structure and Mechanical Properties of Vacuum-Melted Molybdenum"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 145-149.

Abstract: The ductility of molybdenum can be increased by increasing the purity of the initial raw material, by deep purification to remove interstitial impurities, and by alloying with thermodynamically active elements and rhenium. Recently, the influence of metals of group VIII on the ductility of molybdenum has been extensively studied. This work studies the influence of iron, cobalt and nickel on the structure and technological ductility of vacuum-melted molybdenum. It is found that alloying with iron-group metals has a modifying influence on the structure, facilitating an increase in the solubility of carbon, the formation of a developed substructure and more even distribution of molybdenum carbides through the volume of the metal, increasing the technological ductility and reducing the cold-shortness threshold. Iron has the most effective influence on increasing ductility, cobalt has the least. Nickel occupies an intermediate position in this respect. Alloying

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Savitskiy, Ye. M., Morgunova, N. N., Burkhanov, G. S., Katayev, R. S.,
Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 145-149.

of molybdenum with iron-group metals increases the recrystallization temperature of the molybdenum. The temperature of the beginning of recrystallization of molybdenum alloys with 0.1% Fe, Co or Ni falls in the 1000-1100° C interval (degree of deformation over 90%). Increasing the annealing temperature of alloys of molybdenum with iron, cobalt and nickel facilitates an increase in ductility and a decrease in strength and hardness by relieving internal stresses. The maximum ductility is achieved after annealing at the recrystallization level -- 1100° C.

USSR

UDC 669.018.1

SAVITSKIY, YE. M., ZAKHAROV, A. M., BURKHANOV, G. S., and KATAYEV, R. S., Institute of Metallurgy imeni A. A. Baykov

"Study of the Ternary System Molybdenum-Nickel-Carbon"

IVUZ, Tsvetnaya Metallurgiya, No 2, 1971, pp 91-94

Abstract: Microscopic and X-ray phase analysis plus determinations of the solidus temperature and microhardness are used to study molybdenum-carbon in the ternary system Mo-Ni-C up to 0.5 and 3.5% Ni. Isothermal cross sections are constructed at 1800 and 1200° and polythermal cross sections are constructed with constant nickel content (0.35%) and carbon content (0.01%). At 1800°, a liquid phase and the carbide Mo₂C are in equilibrium with the molybdenum solution, while at 1200° the delta phase (solution based on MoNi) and Mo₂C are in equilibrium. The Mo-Ni-C system forms no complex carbides in the concentration range studied. Alloying of molybdenum with nickel increases the solubility of carbon in the molybdenum in the solid state at high temperatures: at 1800°, the solubility of carbon is increased from 0.04 to 0.07% by introduction of 0.8% Ni. Alloying of Mo-C with nickel decreases the solidus temperature and expands the temperatures range of crystallization. 1/1.

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1/2 037 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INVESTIGATION OF THE ANTIFERROMAGNETISM FERROMAGNETISM TRANSITION
IN THE COMPOUND MN SUB1,88 CR SUB0,12 SB -U-
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2/2 037

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106258

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF HIGH PRESSURE (UP TO P EQUALS 11000 ATM.) AND A STRONG MAGNETIC FIELD (UP TO 300 KOE) ON THE ANTIFERROMAGNETISM FERROMAGNETISM TRANSITION TEMPERATURE T OF THE MN SUB1,88 CR SUB0,12 SB COMPOUND IS INVESTIGATED AND THE VALUES OF DT SUBS-DP AND DT SUBS-DH ARE DETERMINED. THE MEASUREMENTS ARE PERFORMED WITH SINGLE CRYSTAL SAMPLES. THE ELASTIC PROPERTIES OF THE COMPOUND ARE INVESTIGATED AND DILATOMETRIC MEASUREMENTS IN VARIOUS CRYSTALLOGRAPHIC DIRECTIONS ARE CARRIED OUT. THE RESULTS OBTAINED ARE DISCUSSED IN LIGHT OF THE KITTEL EXCHANGE INVERSION THEORY OF MAGNETIC PHASE TRANSITION OF THE FIRST KIND.

FACILITY: INST. FIZIKI METALLOV AN SSSR.

UNCLASSIFIED

USSR

UDC 669.017:539.4+548.55

SAVITSKIY, Ye. M., BURKHANOV, G. S., ZALIVIN, I. M., Moscow

"Structure and Mechanical Properties of NiAl in the Polycrystalline and Single Crystal States"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 111-113.

Abstract: The influence of interstitial impurities and structure on the cold shortness of the metal compound NiAl (CaCl-type crystal structure) and the dependence of mechanical properties of NiAl single crystals on the crystallographic direction of compression testing are studied. The material has a body-centered cubic lattice with a mixed type of interatomic bond, primarily metallic. Production of the compound in the single crystal state with reduced content of interstitial impurities causes an increase in ductility and a displacement of the cold shortness threshold in compression testing from 400-500°C to room temperatures. Studies of the mechanical properties of single crystals show their stronger orientation dependence in comparison to other face-centered cubic and body-centered cubic metals. The anisotropy of compressive strength was approximately 200%, as opposed to 30% for body-centered cubic metals.

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Single Crystals

USSR

UDC: 669.018.45:669-172

SAVITSKIY, Ye. M., BURKHANOV, G. S.

"Single Crystals of Refractory and Rare Metals and Alloys"

Monokristally tugoplavkikh i redkikh metallov i splavov [English version above], Moscow, Nauka Press, 1972, 258 pp.

Translation of Annotation: This monograph summarizes the results of the works of Soviet and foreign researchers on the production, structure and properties of single crystals of the refractory and rare metals. The experimental studies of the authors are extensively reported.

Modern concepts of the true structure of metal crystals and the nature of the interatomic bond in them are presented. Attention is given to the influence of external actions on the stability of their structure and properties. The primary methods of growing metal crystals are discussed. Problems of the production and study of monocrystals of refractory metal alloys are analyzed. Separate chapters discuss problems of plastic deformation and heat treatment of single crystals of refractory and rare metals. Examples of the application of refractory metal single crystals in technology are presented.

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USSR

UDC: 669.018.45:669-172

Savitskiy, Ye. M., Burkhanov, G. S., Monokristally tugoplavkikh i redkikh metallov i splavov, Moscow, Nauka Press, 1972, 258 pp.

The book is designed for researchers and practical metallurgists, metals scientists, metal physicists studying and producing single crystals of the refractory and rare metals, as well as specialists of other types interested in the application of single crystals in technology.

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UDC: 669.018.45:669-172

Savitskiy, Ye. M., Burkhanov, G. S., Monokristally tugoplavkikh i redkikh metallov i splavov, Moscow, Nauka Press, 1972, 258 pp.

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USSR

UDC: 669.018.45:669-172

Savitskiy, Ye. M., Burkhanov, G. S., Monokristally tugoplavkikh i redkikh metallov i splavov, Moscow, Nauka Press, 1972, 258 pp.

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USSR

UDC 669-172:541.12.03

SAVITSKIY, Ye. M., BUROV, I. V., LITVAN, L. N., BURKHANOV, G. S., and
BOKAREVA, N. N.

"Work Function of Single Crystals of Molybdenum-Niobium System Alloys on
(111) Face in a Vacuum"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory
and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 74-77

Translation: The work function of single crystals of the molybdenum-niobium system of alloys on the (111) face is measured in a vacuum of 10^{-9} torr throughout the entire range of concentrations. Using a thermo-emission projector, an emission picture is produced for the alloy Mo + 42% Nb, and anisotropy is established similar to that produced for pure metals with a BCC lattice. The experimental results produced with single crystals of the alloys confirmed the general nature of the monotonous change in emission properties in solid solutions of binary equilibrium systems both for polycrystals and for single crystals. In performing measurements with single crystals, a change was noted in the fine structure of the alloys, influencing their emission properties. 2 Tables; 2 Figures; 11 Bibliographic References.

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Single Crystals

USSR

UDC 539.8

SAVITSKIY, YE. M., Corresponding Member Academy of Sciences USSR, MURKHANOV, G. S., TETYUYEVA, T. V., and KUZ'MISHCHEV, V. A., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR, Moscow

"Effects of Thermocycling on Tungsten and Molybdenum Alloy Single Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 373-376

Abstract: A review of data on the thermocycling of single crystals of W and Mo alloys indicates that alloying elements forming with the metal matrix (W or Mo) extensive ranges of solid solutions and increasing the solubility of non-metallic inclusions (particularly C) in the solid phase increase the stability of the structure and characteristics of the alloys in thermocycling. These alloying elements comprise, in addition to Re, the data pertaining to which are reported in detail, the hexagonal metals of the VIII group Ru and Os and possibly also Mn and Tc. On the other hand, alloying elements which decrease the solubility of non-metallic inclusions and increase their amount in an undissolved state in the metal matrix expedite destruction of the single-crystal alloys in thermocycling. These alloying elements include metals of the I - VI groups. The extent to which these regularities apply to polycrystalline W and Mo should be investigated experimentally.

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Refractory Materials

USSR:

UDC 669.018.45

SAVITSKIY, Ye. M., and BURKHANOV, G. S.

Metallovedeniye Splavov Tugoplavkikh i Redkikh Metallov (Physical Metallurgy of Refractory and Rare Metals), Moscow, "Nauka," 1971, 356 pp

Annotation: The second edition of the monograph contains a number of new materials. Works of Soviet and foreign researchers are generalized, experimental data are given on the structure and properties of refractory metals and alloys, and a study is made of the areas of application of these metals and alloys. The treatment of the book is from the physico-chemical position. Concepts of the interatomic bond nature and basic physical properties of refractory metals, e.g., thermal, electrical, and mechanical, are considered. Fundamentals of the theory of alloys, the experimental methods of constructing phase diagrams, and the interaction of refractory metals with other elements of the periodic system are described. Modern concepts of the nature of cold brittleness of refractory metals and methods for controlling cold brittleness are presented in a separate chapter. Particular attention is given to obtaining and investigating the structure and properties of single crystals of refractory metals and alloys. Data are given on the oxidation of refractory metals, and ways of improving their thermal stability and compatibility with other materials are considered.

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USSR.

SAVITSKIY, Ye. M., and BURKHANOV, G. S., Metallovedeniye Splavov Tugoplavkikh i Redkikh Metallov (Physical Metallurgy of Refractory and Rare Metals), Moscow, "Nauka," 1971, 356 pp

Problems of melting, pressure treatment, heat treatment, and welding and soldering of alloys and refractory metals are considered in the last chapter. In conclusion, basic areas for future investigations of refractory metals and alloys are noted.

The edition is intended for physical chemists, metallurgists, metal scientists, metal physicists, designers, mechanical engineers, and specialists from other branches who are working in design bureaus, research organizations, and in industrial enterprises in advanced technology.

The monograph may also be used as a textbook by teachers and students at metallurgical, physico-technical, chemical, and mechanical engineering schools of higher education.

The book contains 56 tables, 188 figures, and 1340 references.

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SAVITSKIY, Ye. M., and BURKHANOV, G. S., Metallovedeniye Splavov Tugoplavkikh i Redkikh Metallov (Physical Metallurgy of Refractory and Rare Metals), Moscow, "Nauka," 1971, 356 pp

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USSR

UDC 669.172

SAVITSKIY, Ye. M., BURKHANOV, G. S., RASKATOV, N. N., and SHNYREV, G. D.

"Formation of Growth Structure During Growing of Tungsten Single Crystals
From a Melt"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory
and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 19-25

Translation: The formation of the growth structure of oriented tungsten
single crystals is studied with various temperature gradients as a function
of the content of carbon in the tungsten and the growth rate. A possible
mechanism of formation of the growth structure of tungsten single crystals
is described. It is established that the formation of a coarse growth
submacrostructure occurs due to macroscopic fluctuation of impurities in
the crystallizing tungsten. 6 Figures; 13 Bibliographic References.

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USSR

UDC 669.172:669.28

SAVITSKIY, Ye. M., BURKHANOV, G. S., TETYUYEVA, T. V., and KUZ'MISHCHEV, V. A.

"Influence of Thermal Cycling Treatment on Fine Structure and Properties of Molybdenum Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 119-124

Translation: The nature of the change in microstructure and properties of molybdenum single crystals as a function of the time of thermal cycling in an atmosphere of helium in the 400-1,600°C temperature interval is studied. It is demonstrated that structural changes are related to the occurrence of two parallel processes: 1) annihilation of dislocations and coalescence of subgrains; 2) multiplication and motion of deformation dislocations, ordering of these dislocations into new subgrains. It is established that during the first stages of thermal cycling, the first process predominates, while later the second predominates. 6 Figures; 5 Bibliographic References.

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USSR

UDC 539.26-548.735.4

SAVITSKIY, Ye. M., BURKHANOV, G. S., OTTENBERG, Ye. V., and KUZ'MISHCHEV, V. A.

"Study of Deformation and Polygonization of Molybdenum Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals — Collection of Works], Nauka Press, 1971, pp 112-119

Translation: The metallographic, x-ray, laue, and topographic methods are used to study the influence of certain conditions of deformation in rolling along the (100) plane in direction [110] and annealing modes on the fine structure of molybdenum single crystals.

It is demonstrated that with increasing degree of deformation, blocks are broken up, the dislocation density is increased, and stressed areas arise. An increase in the degree of deformation before heating causes an increase in breakup of blocks during heating and their disorientation. The influence of annealing temperature and deformation on the substructure of molybdenum single crystals is established. 8 Figures; 5 Bibliographic References.

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USSR

UDC 669.172

SAVITSKIY, Ye. M., BURKHANOV, G. S., and AGEYEV, M. N.

"Effect of High-Temperature Hardening on Substructure and Ductility of Tungsten Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 135-139

Translation: The effect of high-temperature, high-speed hardening on the fine structure and plastic properties of tungsten single crystals is studied. 4 Figures; 3 Bibliographic References.

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USSR

UDC 669-172

SAVITSKIY, Ye. M., BURKHANOV, G. S., and BOKAREVA, N. N.

"Orientation Dependence in Extension of Molybdenum Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 171-176

Translation: When molybdenum single crystals grown by cathode ray zone vacuum melting in the [100], [110], and [111] directions are put in extension at room temperature, strong anisotropy of mechanical properties is noted. The greatest plasticity is noted when the axis of extension corresponds to the [110] direction, the greatest strength -- when this axis corresponds to the [100] direction. Anisotropy with respect to σ reaches 30%, with respect to δ -- 20% and ψ -- 30%. The course of the deformation curves for various orientations, like the anisotropy of plasticity, is explained on the basis of the orientation dependence of intersecting slippage in the BCC lattice. 4 Figures; 10 Bibliographic References.

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USSR

UDC 669.172:620.17

SAVITSKIY, Ye. M., BURKHANOV, G. S., RASKATOV, N. N., and SHNYREV, G. D.

"Mechanical Properties of Large Tungsten Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 139-143

Translation: The mechanical properties of large single crystals of tungsten up to 40 mm in diameter produced using a low-temperature plasma at room temperature and 1,000-2,000°C are studied. It is established that the anisotropy of the mechanical properties of single crystals, which appears strongly at room temperature, becomes insignificant at 1,000-2,000°. 2 Tables; 3 Figures; 5 Bibliographic References.

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UDC 669.018.1

SAVITSKIY, YE. M., ZAKHAROV, A. M., BURKHANOV, G. S., and KATAYEV, R. S., Institute of Metallurgy imeni A. A. Baykov

"Study of the Ternary System Molybdenum-Nickel-Carbon"

IVUZ, Tsvetnaya Metallurgiya, No 2, 1971, pp 91-94

Abstract: Microscopic and X-ray phase analysis plus determinations of the solidus temperature and microhardness are used to study molybdenum-carbon in the ternary system Mo-Ni-C up to 0.5 and 3.5% Ni. Isothermal cross sections are constructed at 1800 and 1200° and polythermal cross sections are constructed with constant nickel content (0.35%) and carbon content (0.01%). At 1800°, a liquid phase and the carbide Mo₂C are in equilibrium with the molybdenum solution, while at 1200° the delta phase (solution based on MoNi) and Mo₂C are in equilibrium. The Mo-Ni-C system forms no complex carbides in the concentration range studied. Alloying of molybdenum with nickel increases the solubility of carbon in the molybdenum in the solid state at high temperatures: at 1800°, the solubility of carbon is increased from 0.04 to 0.07% by introduction of 0.8% Ni. Alloying of Mo-C with nickel decreases the solidus temperature and expands the temperatures range of crystallization. 1/1

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UDC: 51:155.001.57:681.3.06

VORONIN, Yu. A., BOROVNIKOV, A. M., SALIN, Yu. S., SOLOV'YEV, V. A., BUR-KHANOV, Kh. Kh.

"On Computer Realization of Stratigraphic Constructions"

V sb. Mat. probl. geofiz. (Mathematical Problems of Geophysics--collection of works), vyp. 2, Novosibirsk, 1971, pp 295-304 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V1027)

Translation: A procedure is given for computer realization of stratigraphic constructions which briefly reduces to the following: 1) with given classifications and enumerations of rocks and types, and a given method of separating lithomatter and biomatter, columns q_k are separated into one-dimensional lithobodies and biobodies, and a set of separated columns (q_k) is obtained in part of the geological space G' ; 2) a description of the (q_k) is given, specifically, a stratigraphic summary column is constructed for G' ; 3) on the basis of the resultant description of the (q_k) , a hypothesis is adopted on the method of identifying columns q_k and a set of identified columns (q_k) in G' is obtained. The axioms and algorithms for primary description of the set of columns are considered. Bibliography of 17 titles. V. Mikheyev.

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USSR

UDC 621.382.333.34

~~BUBKHANOV, S.H.D.~~, BASHIROV, A.M., GARSHENIN, V.V., GORCKHOV, V.A., RODOV, V.I.

"Investigation Of The Causes For Breakdown Of Thyristors During Operation In A Pulse Regime"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices In Electrical Communications Technology--Collection Of Works), Moscow, "Svyaz'," 1970, pp 145-157 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B246)

Translation: It is shown that loss of efficiency of a thyristor in a pulse regime results as a consequence of burning through in the p-n-p-n structure of a channel 0.1--0.3 mm in diameter, while one of the possible causes for this is thermal generation of the carriers. 9 ill. 10 ref. S.A.

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USSR

UDC 613.63:615.285.42+615.285.7

BURKATSKAYA, N. Ye., MATYUSHINA, V. I., and IVANOVA, Z. V., Kiev Institute of Industrial Hygiene and Occupational Diseases

"Hygienic Evaluation of the New Insecticide and Acaricide Dicresyl Ester of N-Methylcarbamic Acid"

Moscow, Gigiyena i Sanitariya, No 8, 1973, pp 99-101

Abstract: Dicresyl is used to protect cattle against certain insects and ixodid ticks. The LD₅₀ for rats and mice is 471 and 271 mg/kg, respectively. It is readily absorbed through the skin and exerts a systemic toxic effect. The symptoms of poisoning after injection into the stomach or application to the skin in toxic and lethal doses include salivation and tearing, head and body tremors, fibrillar twitching of muscles, and clonic-tonic spasms similar to those induced by poisoning with organophosphorus compounds and, like the latter, it markedly inhibits cholinesterase activity. Dicresyl is also toxic when inhaled. Despite the similarity of its chemical structure to that of urethan, it did not have a tumorigenic effect when administered to a high-cancer mouse strain (A). Dicresyl was found to penetrate the protective clothing (cotton robes and rubber gloves) of workers handling it (the

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BURKATSKAYA, N. Ye., et al., Gigiyena i Sanitariya, No 8, 1973, pp 99-101

cholinesterase level was 24 to 43% below normal the first day of use although it did not provoke subjective complaints). The recommended maximum permissible concentration in the air of work places is 0.5 mg/m³.

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USSR

UDC 681.325.3

SOKOLOV, G. G., MOKHOV, V. A., and BURKIN, N. I.

"A High-Speed Triode Analog-Digital Converter"

Tr. Leningr. In-t Aviats. Priborostr. (Works of Leningrad Institute for Building Aviation Machines), No 69, 1971, pp 81-85 (from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B377, by B. K.)

Translation: A three-bit analog-digital converter having a conversion cycle length of 0.5 microseconds is described. The converter is constructed according to a bit-by-bit coding scheme. Comparison of the voltage being measured and a standard voltage is carried out with the help of tunnel diodes, which control transistorized keys. Diagrams of an analog-digital converter are given for the case of conversion of analog signals having positive and negative polarity. The input resistance of the converter is equal to 75 ohms; the maximum voltage of the input signal is 1 volt; the working range of changes in temperature is from -10° C to +40° C. 2 illustrations, 4 titles in bibliography.

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USSR

UDC: 551.510.535

BURKIN, V. S., KRAVTSOV, Yu. A., FEYZULIN, Z. I.

"Analysis of Errors in Measuring Parameters of the Ionosphere by Means of Multifrequency Pulse Emission"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 673-679

Abstract: The method of small perturbations is applied to equations of geometric optics to calculate systematic and random errors in measuring the parameters of the ionosphere by using multifrequency pulse emission. The measurement procedure is based on determining the times of delay and the directions of arrival of a wave on various frequencies reflected from an artificial satellite. The measurement on each frequency is distorted by wave propagation errors in the ionized atmosphere, and by instrument noises. On high frequencies, the errors are determined by the distribution of ionization alone at the time of measurement. Expressions are given which relate the parameters determined by distribution of ionization to the electron concentration of the ionospheric plasma. Determination of the unknown parameters is reduced to solution of a system of linear algebraic equations. In conclusion the authors thank S. M. Rytov and V. G. Repin for interest in the work.

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BURKIN, Yu. V.

automation

SO: JPRS 55742

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UDC 62.50:007-51:681

SUBMODEL SIMILARITY RATIOS AND DESIGN OF INDIVIDUAL INDIRECT EXPERIMENTS

Yu. V. Burkin

[Article by Yu. V. Burkin, Institute of Problems of Control (Automation and Telemechanics) Moscow, Doklady Akademii Nauk SSSR, Russian, Vol 202, No 1, 1972, signed to press 4 March 1971, pp 32-35.]

The purpose of studying similarity ratios between entities is to establish modeling ratios, since investigations of only one of the entities can be conducted on the basis of modeling ratios and the results, within the framework of the modeling ratios, can be extended to all other entities encompassed by the modeling ratios without distortion. However, the process of establishing the modeling ratios in view of the different limitations imposed in a number of instances often cannot be proven completely without changing the sense of the similarity of the conditions ensuring the modeling ratios may be virtually unattainable. Such a situation arises, for example, in studying phenomena in social environments (limitations on the scale of that part of the entity to be studied and on the effects [1]), with the tests being conducted on equipment with essentially limited possibilities and with the cost of the test systems being limited, etcetera. These limitations are often compounded in that even an indirect experiment (i.e., by varying the entity or conditions in the experiment) may be an isolated instance [1].

Let us examine the programming of indirect isolated experiments on the basis of similarity ratios that are weaker than the modeling ratios.

1. According to [2], between two entities let there be formalized lists of predicates f_1, f_2, \dots, f_n , in the form of a set of three transformations

$$(A, f) \Rightarrow (A', f) \Leftarrow (f', f) \Rightarrow (f, f). \quad (1)$$

determined on sets A, B, A', B' , respectively, where $f: A \rightarrow B$ is an isomorphism, $f_1 \Rightarrow f_2$ and $f_2 \Rightarrow f_3$ are homomorphisms. According to [2], the entities formalized on sets A and B are found in the modeling ratios.

2. Let us introduce into study a set M of metric spaces A, A_n having the metrics G_A, G_{A_n} , where m is a set of indices. The measuring process on the entities, formalized on A, B, A' , and B' , can be written as calculations of distances in M , denoted by $G_A(A, B)$, $G_{A_n}(A', B')$, $G_A(A, A')$, and $G_{A_n}(B, B')$, assuming in each

case the elements of space M to be vectors whose components are numerical values of the functionals compared in the transformations in (1) becoming to the lists of predicates.

If the modeling ratio contains no ratios of equality as part of the isomorphism $f_3 \in \mathcal{F}_1$, then obviously $m \in \mathcal{P}$, and in the modeling ratio (1) $A(B)$ is a qualitative model of $B(A)$. When $m \notin \mathcal{P}$, quantitative modeling is also valid. Let us further examine this latter case and write out everywhere explicitly the metric part of the isomorphism from (1) in the form of the condition $G_M(A', B) = 0$, and ascribe the designation $f_3 \in \mathcal{F}_1$ only to the nonmetric part of the isomorphism. Thus the formal condition of the modeling ratio is [2] the truth of the conjunction

$$(I_1 \Leftrightarrow I_2) \wedge (G_M(A', B) = 0). \quad (2)$$

Supplementing the definition of the modeling ratio from [2] we shall assume, for the modeling ratio between the entities formalized as A and B , similarity ratios for which the truth of (2) implies

$$G_M(A, B) = 0. \quad (3)$$

In fact, even with such a concept of the modeling ratio the behavior of $A(B)$ may be precisely predicted from the behavior of $B(A)$ in the sense given by selection of the lists of predicates.

3. All similarity ratios between A and B , given by the relationship for which conjunction (2) and (3) is a partial case, will be called submodel similarity ratios or imitation ratios.

Computation of the distance $G_M(C, C')$ will be called computation of the measure of inadequacy of representing C' from the system C in the form of M and in the sense given by the lists of predicates.

The inequality

$$|G_M(A, A') - G_M(B, B')| \leq G_M(A', B') + G_M(A, B),$$

which is valid when all $M \in m$ for the modeling ratio, in view of (2) and (3), will give the equation

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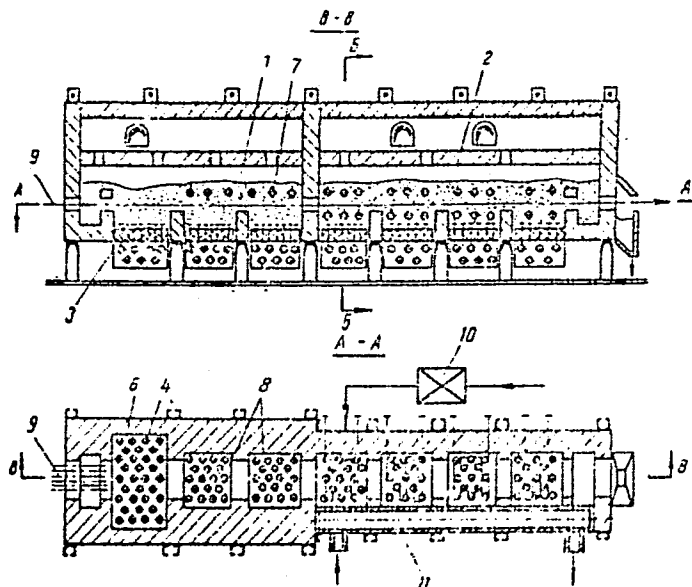
Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

240728 COMPARTMENT FURNACE intensifies the heat treatment operation in that each section of its gas distributor grid has independent headers to activate part of its lids or caps. The bottoms of the heating (1) and cooling (2) compartments comprise the grid sections (3) to support crushed corundum, firebrick etc, the first section grid (6) rather wider than those following so that the gas can burn well below the level of the wire passing through and provide enough heat to raise the metal to scale temperatures. The gas (short of air) burns and forms a de-oxidising medium, with additional air piped in (7) to finally burn off the gas above the wire level. When working small gauge wire, air preheated in the stove (10) is fed in through the grid caps. When working average gauge material, heat can be removed by the air cooling tube (11), whilst at heavy gauges a water-cooling tube can be inserted.

15.12.66 as 1120453/22-1.GUTOVSKII.B.P.et al(14.8.69)
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Krasil'nikov, L. A.; and Sokolov, N. V.

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1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70
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